AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application.

As shown below, please cancel claims 2-26 without prejudice, and add new claims 27-45.

Listing of Claims:

1. Method for shaping, in particular forging, workpieces by use of a shaping machine (1) having at least one shaping tool, wherein

a) during the machining process a workpiece is handled by means of at least one handling device (3),

b) the position and/or orientation of the workpiece (2), in particular before machining of workpieces on the shaping machine (1), using this tool is/are determined by the fact that

b1) a detection device (3, 4, 4') approaches at least one predetermined reference surface (5, 6, 7, 8, 9, 10) on the tool (2) and detects at least one position or one point on this/these reference surface(s),

b2) the information corresponding to the detected position(s) of the reference surface(s) (5, 6, 7, 8, 9, 10), in particular signals or data from the detection device, is transmitted to an evaluating means (11) and

b3) from this information about the position(s) of the reference surface(s) the evaluating means (11) determines the position and/or orientation of the tool (2), and

c) the position and/or orientation of the tool (2) determined by the evaluating means is used as the basis for handling the tools by at least one handling device.

2. (Cancelled) Method according to Claim 1, wherein the detection device comprises a handling device (3) equipped with at least one sensor (4, 4').

3. (Cancelled) Method according to Claim 2, wherein the handling device (3) for the detection device is also used as a handling device for handling the workpieces.

4. (Cancelled) Method according to one or more of the preceding claims, wherein the position of the coordinate system or reference system of each handling device for handling the workpieces is calculated by the evaluating means from the detected position(s) of the reference surface(s) of the tool, in particular by use of translation imaging and/or rotary imaging.

5. (Cancelled) Method according to one or more of the preceding claims, wherein the position(s) of the reference surfaces is/are used to detect at least three points in space, or, for the coordinate system or reference system, of at least one handling device for handling the workpieces.

6. (Cancelled) Method according to one or more of the preceding claims, wherein the detection device detects at least two positions or points of this/these reference surface(s) by scanning the reference surface(s).

7. (Cancelled) Method according to one or more of the preceding claims, wherein the detection device approaches at least three reference surfaces on the tool, preferably in a predetermined sequence, and in each case precisely detects one position or one point on each of these reference surfaces.

8. (Cancelled) Method according to one or more of the preceding claims, wherein the position(s) of the reference surfaces is/are used to determine a reference plane in space, or, for the coordinate system or reference system, of at least one handling device for handling the workpiece.

9. (Cancelled) Method according to one or more of the preceding claims, wherein a reference plane in space, or, for the coordinate system or reference system, of at least one handling device for handling the workpieces, is determined from two positions of the reference surface(s) or two reference surfaces on the one hand, and from predetermined, additional linearly

independent information, in particular information about a plane that is parallel to the reference plane.

10. (Cancelled) Method according to one or more of the preceding claims, wherein the detection device or the handling device for the detection device approaches the reference surfaces on the tool from predetermined starting points.

11. (Cancelled) Method according to Claim 10, wherein the starting points are located in the same configuration relative to one another as for the reference surfaces on the tool.

12. (Cancelled) Method according to one or more of the preceding claims, wherein after replacing a tool first the position and/or orientation of the tool (2) is/are determined using the detection device (3, 4, 4') and the evaluating means (11) within the scope of a learning or calibration step, and then the handling of the workpieces is based on the determined position and/or orientation of the tool (2).

13. (Cancelled) Method according to one or more of the preceding claims, wherein before the position and/or orientation of the tool (2) is determined, at least one detection device (4, 4') or the sensor(s) thereof is/are tested by the detection device approaching a test surface (12, 13) preferably provided on a tool mounting.

14. (Cancelled) Method according to Claim 13, wherein an alarm signal is issued when the test of at least one detection device (4, 4') determines an irregularity in the evaluating means (11).

15. (Cancelled) Device for shaping, in particular forging, of workpieces, in particular for carrying out the method according to one of Claims 1 through 14, comprising

a) at least one shaping machine (1), in particular a forging machine,

b) at least one handling device (3) for handling workpieces,

c) at least one detection device (4, 4'),

d) at least one reference surface (5, 6, 7, 8, 9, 10) being provided on a tool (2) of the shaping machine (1) for scanning or recognition, using at least one detection device (4, 4'), and

e) an evaluating means (11) being provided which determines or is able to determine the position and/or orientation of the tool (2) from the data or signals transmitted from the detection device (4, 4').

16. (Cancelled) Device according to Claim 15, wherein the detection device comprises a handling device (3) equipped with at least one sensor (4, 4').

17. (Cancelled) Device according to Claim 16, wherein the same handling device (3) is provided for determining the position and/or orientation of the tool (2) or for the detection device as well as for handling the workpieces.

18. (Cancelled) Device according to Claim 16 or Claim 17, wherein the detection device comprises at least one sensor (4, 4') that operates in a contactless manner.

19. (Cancelled) Device according to Claim 18, wherein at least one sensor (4, 4') is a proximity switch or proximity sensor, or an ultrasound sensor.

20. (Cancelled) Device according to one of Claims 16 through 19, wherein the detection device comprises at least one sensor (4, 4') that operates in a contacting manner.

21. (Cancelled) Device according to Claim 20, wherein at least one sensor (4, 4') is a short-circuiting switch or contact switch.

22. (Cancelled) Device according to one or more of Claims 16 through 20, wherein the detection device, in particular the handling device (3) for the detection device, is equipped with (a) position measurement system(s) (14, 15) by which the position of at least one sensor (4, 4') in space can be determined.

23. (Cancelled) Device according to one of Claims 15 through 22, wherein the handling device (3) has a gripper (16) for gripping a workpiece.

24. (Cancelled) Device according to Claim 23 and Claim 17, wherein at least one sensor (4, 4') is provided in the vicinity of the gripper.

25. (Cancelled) Device according to one of Claims 15 through 24, wherein the reference surfaces (5, 6, 7, 8, 9, 10) on the tool (2) are designed as flat surfaces, of which at least two are oriented substantially at right angles relative to one another.

26. (Cancelled) Device according to one of Claims 15 through 25, having at least one test surface (12, 13) by which the functioning of the handling device (3) and/or at least one sensor (4, 4') can be tested.

27. (New) A method for shaping, in particular forging, workpieces using a shaping machine having at least one shaping tool, comprising:

a) handling one or more workpieces during a machining process with at least one handling device;

b) prior to machining the workpiece on a shaping machine, determining a position and/or orientation of at least one shaping tool of the shaping machine by:

b1) approaching one or more predetermined reference surfaces on the at least one shaping tool with a detection device, thereby detecting at least one position of one or more of the one or more predetermined reference surfaces;

b2) transmitting to an evaluating means information from the detection device corresponding to the detected at least one position of the one or more of the one or more predetermined reference surfaces; and

b3) the evaluating means determining the position and/or orientation of the at least one shaping tool from the transmitted information regarding the detected at least one position of one or more of the one or more predetermined reference surfaces; and

c) using the determined position and/or orientation of the at least one shaping tool as a basis for handling the at least one shaping tool by the at least one handling device.

28. (New) The method as recited in claim 27, wherein the detection device comprises the at least one handling device equipped with at least one sensor.

29. (New) The method as recited in claim 28, wherein the at least one handling device of the detection device is also used as a handling device for handling the one or more workpieces.

30. (New) The method as recited in claim 27, further comprising the evaluating means calculating a position of a coordinate system or reference system of each at least one handling device from the detected at least one position by use of translation imaging and/or rotary imaging.

31. (New) The method as recited in claim 30, further comprising, using the detected at least one position, performing at least one of :

(i) detecting at least three points in space; or

(ii) for the coordinate system or reference system, detecting at least three points of the at least one handling device for handling the one or more workpieces.

32. (New) The method as recited in claim 27, wherein the detection device detects at least two positions or points of the one or more predetermined reference surfaces by scanning the one or more predetermined reference surfaces.

33. (New) The method as recited in claim 27, wherein the detection device approaches at least three reference surfaces on the at least one shaping tool, preferably in a predetermined sequence, and in each case precisely detects one position or one point on each of the one or more predetermined reference surfaces.

34. (New) The method as recited in claim 27, further comprising, using a plurality of detected positions of the one or more predetermined reference surfaces, performing at least one of:

(i) determining a reference plane in space; or

(ii) for a coordinate system or reference system, determining a reference plane of at least one handling device for handling the workpiece.

35. (New) The method as recited in claim 34, wherein the reference plane in space, or, for the coordinate system or reference system, the reference plane of at least one handling device for handling the workpieces, is determined from:

(i) two positions of the one or more predetermined surfaces; and

(ii) predetermined, additional linearly-independent information about a plane that is parallel to the reference plane.

36. (New) The method as recited in claim 27, wherein the detection device or the at least one handling device for the detection device approaches the one or more predetermined reference surfaces on the at least one shaping tool from one or more predetermined starting points.

37. (New) The method as recited in claim 36, wherein the one or more predetermined starting points are located in a configuration relative to one another that corresponds to a configuration relative to one another for the one or more predetermined reference surfaces on the at least one shaping tool.

38. (New) The method as recited in claim 27, further comprising:

after replacing the at least one shaping tool with a new shaping tool, determining a position and/or orientation of the new shaping tool using the detection device and the evaluating means in a learning or calibration step; and

basing the handling of the one or more workpieces on the determined position and/or orientation of the new shaping tool.

39. (New) The method as recited in claim 38, further comprising, prior to determining the position and/or orientation of the new shaping tool, testing at least one detection device or one or more sensors thereof by approaching, with the detection device, a test surface on a tool mounting of the new shaping tool.

40. (New) The method as recited in claim 39, further comprising:

identifying an irregularity in the evaluating means when testing the at least one detection device; and

issuing an alarm signal.

41. (New) A device configured for shaping, in particular forging, workpieces, comprising:

a) at least one shaping machine, such as a forging machine;

b) at least one handling device for handling one or more workpieces;

c) at least one detection device;

d) one or more predetermined reference surfaces on a shaping tool of the shaping machine, wherein the at least one of the one or more predetermined reference surfaces is positioned to be scanned or recognized by the at least one detection device; and

e) an evaluating means configured to determine a position and/or orientation of the shaping tool from information transmitted by the detection device.

42. (New) The device as recited in claim 41, wherein the at least one detection device further comprises the at least one handling device being equipped with at least one sensor, wherein the at least one sensor is any one or more of a contacting sensor, a non-contacting sensors, a proximity switch or sensor, an ultrasound sensor, a short-circuiting switch, or a contact switch.

43. (New) The device as recited in claim 42, wherein the at least one the handling device for the detection device further comprises a position measurement system for determining the position of the at least one sensor in space.

44. (New) The device as recited in claim 42, wherein the at least one handling device further comprises a gripper for gripping the one or more workpieces, and at least one sensor located in the vicinity of the gripper.

45. (New) The device as recited in claim 41, wherein:

(i) the one or more predetermined reference surfaces on the at least one shaping tool are designed as flat surfaces; and

(ii) at least two of the one or more predetermined reference surfaces are oriented substantially at right angles relative to one or more of:

1. one another; or

2. at least one test surface with which a function of the at least one handling device and/or at least one sensor can be tested.